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EXAMINER

SEMENENKO, YURIY

ART UNIT	PAPER NUMBER
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2841

NOTIFICATION DATE	DELIVERY MODE
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ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/604,768	Applicant(s) LI, CHING-CHIH	
	Examiner YURIY SEMENENKO	Art Unit 2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 6 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Admitted by Applicant Prior Art (Background of Invention section), hereinafter AAPA.

Regarding to claim 1: AAPA discloses a structure for reducing cross-talk comprising: an electric board 12, 22 (combination of fig. 1 and 2, [0006], [0008]) comprising a ground layer [0007]; and a plurality of adapting modules [0007], [0008], (shown in fig. 1 and 2) installed on the electric board, only one of the adapting module can operate at a time [0009]; each adapting module comprising: a plurality of slots 14, 24 (for detachably accommodating a plurality of corresponding adapting devices – intended use) and a plurality of buses 16, 26 electrically connected to the plurality of slots 14, 24 for transmitting signals and data [0007], wherein when the adapting module does not operate, the corresponding plurality of buses 16, 26 are electrically connected to the ground layer [0009] of the electric board 12, 22; wherein the plurality of buses 16, 26 of the plurality of adapting modules are alternately laid out on the electric board 12, 22 [0008].

Regarding to claim 6: AAPA as modified by the teaching of Greefkes teaches the structure having all of the claimed features as discussed above with respect to

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claim 1, wherein each adapting module [0007] (shown in fig. 1, 2) comprises a controller 18, 28 for controlling operations of the adapting modules [0009].

Regarding to claim 9: AAPA as modified by the teaching of Greefkes teaches the structure having all of the claimed features as discussed above with respect to claim 1, being applied in a motherboard of a personal computer [0004], [0006].

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2.1. Claims 2-3, 10-11 and 13-15 are rejected under 35U.S.C. 103(a) as being unpatentable over AAPA as applied to claims 1, 6 and 9 above, and further in view of Greefkes (US 4097693) hereinafter Greefkes.

Regarding to claims 2 and 3: AAPA teaches the structure having all of the claimed features as discussed above with respect to claim 1, wherein when the adapting module does not operate, the corresponding to the adapting module switches the plurality of buses into the ground voltage mode, so that the plurality of buses 16, 26, fig. 1-2 are electrically connected to the ground layer of the electric board [0009],

except AAPA doesn't teach ends of a plurality of buses of at least an adapting module comprise a switch corresponding to the adapting modules (for switching the ends of the plurality of buses between a predetermined voltage mode and a ground voltage mode –intended use).

Greefkes teaches in fig. 1, 2 the plurality of lines $X_1 \dots X_4$ of module comprise a switch (col. 4:1-12) corresponding to the modules $MA_1 \dots MA_4$ for switching the ends of the plurality of lines $X_1 \dots X_4$ between a predetermined voltage mode and a ground voltage mode (col. 3:17-26), (considering end of the intermediate lines at crosspoint element which are represented in the Figure by small circles which can be switched in time multiplex, (col. 13-15)).

Therefore it would have been obvious to one of ordinary skill in the art, at the time the invention was made for AAPA to include in his invention ends of a plurality of buses of at least an adapting module comprise a switch corresponding to the adapting modules for switching the ends of the plurality of buses between a predetermined voltage mode and a ground voltage mode, as taught by Greefkes in order to reduce the crosstalk, as taught by Greefkes (col. 1:41-46).

Regarding to claim 10: AAPA discloses a method for reducing cross-talk in a different-buses-co-layout structure (combination of fig. 1 and 2, [0006], [0008]), the different-buses-co-layout structure comprising a plurality of buses 16, 26 for transmitting different types of signals and data, the method comprising: alternately laying out [0008] different types of the plurality of buses on an electric board 12, 22 (combination of fig. 1 and 2, [0006], [0008]); utilizing buses of only one type to transmit signals and data [0009]; and electrically connecting each bus not transmitting signals and data to a ground [0009], [0007] of the electric board 12, 22,

except AAPA doesn't teach electrically connecting two ends of each bus to a ground.

Greefkes teaches in fig. 1, 2 only one of the memories $MA_1 \dots MA_4$ can operate at a time; and when the memory does not operate, and electrically connecting end of each line $X_1 \dots X_4$ not transmitting signals and data to a ground (col. 3:17-26), (considering end of the intermediate lines at crosspoint element which are represented in the Figure by small circles which can be switched in time multiplex, (col. 13-15)).

Therefore it would have been obvious to one of ordinary skill in the art, at the

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time the invention was made for AAPA to include in his invention electrically connecting two ends of each bus not transmitting signals and data to a ground, as taught by Greefkes in order to reduce the crosstalk, as taught by Greefkes (col. 1:41-46).

Regarding to claim 11: AAPA as modified by the teaching of Greefkes teaches the structure having all of the claimed features as discussed above with respect to claim 10, wherein the different- buses-co-layout structure (combination of fig. 1 and 2, [0006], [0008]) comprises a plurality of adapting modules [0007], [0008], shown in fig. 1 and 2), wherein each adapting module corresponds a plurality of buses of one type, the method further comprises operating only one adapting module [0009].

Regarding to claim 13: AAPA as modified by the teaching of Greefkes teaches the structure having all of the claimed features as discussed above with respect to claim 11,

except AAPA doesn't teach ends of a plurality of buses of at least an adapting module comprise a switch corresponding to the adapting modules for switching the ends of the plurality of buses between a predetermined voltage mode and a ground voltage mode.

Greefkes teaches in fig. 1, 2 the plurality of lines $X_1 \dots X_4$ of module comprise a switch (col. 4:1-12) corresponding to the modules $MA_1 \dots MA_4$ for switching the ends of the plurality of lines $X_1 \dots X_4$ between a predetermined voltage mode and a ground voltage mode (col. 3:17-26).

Therefore it would have been obvious to one of ordinary skill in the art, at the time the invention was made for AAPA to include in his invention ends of a plurality of buses of at least an adapting module comprise a switch corresponding to the adapting modules for switching the ends of the plurality of buses between a predetermined voltage mode and a ground voltage mode, as taught by Greefkes in order to reduce the crosstalk, as taught by Greefkes (col. 1:41-46).

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Regarding to claim 14: AAPA as modified by the teaching of Greefkes teaches the structure having all of the claimed features as discussed above with respect to claim 13 further comprising the plurality of buses 16, 26, fig. 1, 2 corresponding to the adapting module which does not operate to the ground voltage so that the plurality of buses are electrically connected to the ground layer of the electric board [0009],

except AAPA doesn't teach the switch to switch the ends of the plurality of buses to the ground.

Greefkes teaches in fig. 1, 2 only one of the memories $MA_1 \dots MA_4$ can operate at a time; and when the memory does not operate, and electrically connecting end of each line $X_1 \dots X_4$ not transmitting signals and data to a ground (col. 3:17-26), (considering end of the intermediate lines at crosspoint element which are represented in the Figure by small circles which can be switched in time multiplex, (col. 13-15)).

Therefore it would have been obvious to one of ordinary skill in the art, at the time the invention was made for AAPA to include in his invention the switch to switch the ends of the plurality of buses to the ground, as taught by Greefkes in order to reduce the crosstalk, as taught by Greefkes (col. 1:41-46).

Regarding to claim 15: AAPA as modified by the teaching of Greefkes teaches the structure having all of the claimed features as discussed above with respect to claim 10, being applied in a motherboard of a personal computer [0004], [0006].

2.2. Claims 7 and 8 are rejected under 35U.S.C. 103(a) as being unpatentable over AAPA as applied to claims 1, 6 and 9 above, and further in view of Otsuka (US 6522173) hereinafter Otsuka.

Regarding to claims 7 and 8: AAPA teaches the structure having all of the claimed features as discussed above with respect to claim 6, wherein when the adapting module does not operate, the controller 18, 28, fig. 1, 2 switches to the ground voltage mode [0009],

except AAPA doesn't teach the controller comprises a MOS circuit for switching the controller between a predetermined voltage mode and a ground voltage mode.

Otsuka discloses in the "Background of the invention" section, at the time the invention was made, that it was well known the controller 3, fig. 1 comprises a MOS circuit for switching the controller between a predetermined voltage mode and a ground voltage mode (col. 1:1028).

Therefore it would have been obvious to one of ordinary skill in the art, at the time the invention was made for AAPA to include in his invention the controller comprises a MOS circuit for switching the controller between a predetermined voltage mode and a ground voltage mode, as taught by Otsuka in order to prevent a crosstalk.

2.3. Claims 16 and 21 are rejected under 35U.S.C. 103(a) as being unpatentable over AAPA in view of Otsuka (US 6522173) hereinafter Otsuka.

Regarding to claim 16: AAPA discloses in fig. 1-2 a different-buses-co-layout structure for reducing cross-talk comprising: an electric board 12, 22 (combination of fig. 1 and 2, [0006], [0008]) comprising a ground layer [0007]; and two adapting modules [0007], [0008], shown in fig. 1 and 2) installed on the electric board comprising a first adapting module (shown in fig. 1) and a second adapting module (shown in fig. 1), wherein the two adapting modules cannot operate at the same time [0009], each adapting module comprising: a controller 18, 28 for controlling operations of the adapting modules, the controller for switching between a predetermined voltage mode and a ground voltage mode [0009], wherein when the adapting module does not operate, controller switches to the ground voltage mode; a plurality of slots 14, 24 for detachably accommodating a plurality of corresponding adapting devices [0007]; and a plurality of buses 16, 26 electrically connected to the plurality of slots for transmitting signals and data, wherein when the adapting module does not operate, the corresponding plurality of buses 16, 26 are electrically connected to the ground layer [0009] of the electric board 12, 22, [0007]; wherein the plurality of buses of the two adapting modules are alternately laid out on the electric board [0009],

except AAPA doesn't teach the controller comprises a MOS circuit for switching the controller between a predetermined voltage mode and a ground voltage mode.

Otsuka discloses in the "Background of the invention" section, at the time the invention was made, that it was well known the controller 3, fig. 1 comprises a MOS circuit for switching the controller between a predetermined voltage mode and a ground voltage mode (col. 1:1028).

Therefore it would have been obvious to one of ordinary skill in the art, at the time the invention was made for AAPA to include in his invention the controller comprises a MOS circuit for switching the controller between a predetermined voltage mode and a ground voltage mode, as taught by Otsuka in order to prevent a crosstalk.

Regarding to claim 21: AAPA as modified by the teaching of Otsuka teaches the structure having all of the claimed features as discussed above with respect to claim 16 being applied in a motherboard of a personal computer [0004], [0006].

2.4. Claims 17 and 18 are rejected under 35U.S.C. 103(a) as being unpatentable over AAPA in view of Otsuka as applied to claims 16 and 21 above, and further in view of Greefkes.

Regarding to claims 17 and 18: AAPA as modified by the teaching of Otsuka teaches the structure having all of the claimed features as discussed above with respect to claim 16, wherein when the adapting module does not operate, the corresponding to the adapting module switches the plurality of buses into the ground voltage mode, so that the plurality of buses 16, 26, fig. 1, 2 are electrically connected to the ground layer of the electric board [0009],

except AAPA doesn't teach ends of a plurality of buses of at least an adapting module comprise a switch corresponding to the adapting modules (for switching the ends of the plurality of buses between a predetermined voltage mode and a ground voltage mode – intended use).

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Greefkes teaches in fig. 1, 2 the plurality of lines $X_1 \dots X_4$ of module comprise a switch (col. 4:1-12) corresponding to the modules $MA_1 \dots MA_4$ for switching the ends of the plurality of lines $X_1 \dots X_4$ between a predetermined voltage mode and a ground voltage mode (col. 3:17-26).

Therefore it would have been obvious to one of ordinary skill in the art, at the time the invention was made for AAPA to include in his invention ends of a plurality of buses of at least an adapting module comprise a switch corresponding to the adapting modules for switching the ends of the plurality of buses between a predetermined voltage mode and a ground voltage mode, as taught by Greefkes in order to reduce the crosstalk, as taught by Greefkes (col. 1:41-46).

2.5. Claims 4 and 5 are rejected under 35U.S.C. 103(a) as being unpatentable over AAPA as applied to claims 1, 6 and 9 above, and further in view of McCall et al. (PG Pub. No. 2003/0016516) hereinafter McCall.

Regarding to claims 4 and 5: AAPA teaches the structure having all of the claimed features as discussed above with respect to claim 1, wherein when the adapting module does not operate, the non-operating adapting module electrically connects to the ground layer of the electric board [0009],

except AAPA doesn't teach at least one of the plurality of slots of at least one adapting module is detachably installed with at least a terminator card (for electrically connecting the plurality of slots installed with the terminator card to the ground layer of the electric board – intended use).

McCall teaches in fig. 14 and 27 at least one slot 118 (18) is detachably installed with at least a terminator card 360 [0105]. Limitations -for electrically connecting the plurality of slots installed with the terminator card to the ground layer of the electric board – are intended use. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 312 F.2d 937, 939, 136 USPQ 458, 459 (CCPA 1963). Since the

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claims do not express or imply a structural difference, they are not seen to be patentably distinct.

Therefore it would have been obvious to one of ordinary skill in the art, at the time the invention was made for AAPA to include in his invention at least one of the plurality of slots of at least one adapting module is detachably installed with at least a terminator card for electrically connecting the plurality of slots installed with the terminator card to the ground layer of the electric board, as taught by McCall in order to provide impedance matching.

2.6. Claims 19 and 20 are rejected under 35U.S.C. 103(a) as being unpatentable over AAPA in view of Otsuka as applied to claims 16 and 21 above, and further in view of McCall.

Regarding to claims 19 and 20: AAPA as modified by the teaching of Otsuka teaches the structure having all of the claimed features as discussed above with respect to claim 16, wherein when the adapting module does not operate, the non-operating adapting module electrically connects to the ground layer of the electric board [0009],

except AAPA doesn't teach at least one of the plurality of slots of at least one adapting module is detachably installed with at least a terminator card (for electrically connecting the plurality of slots installed with the terminator card to the ground layer of the electric board – intended use).

McCall teaches in fig. 14 and 27 at least one slot 118 (18) is detachably installed with at least a terminator card 360 [0105]. Limitations: for electrically connecting the plurality of slots installed with the terminator card to the ground layer of the electric board – are intended use. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 312 F.2d 937, 939, 136 USPQ 458, 459 (CCPA 1963). Since the claims do not express or imply a structural difference, they are not seen to be patentably distinct.

Therefore it would have been obvious to one of ordinary skill in the art, at the

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time the invention was made for AAPA to include in his invention at least one of the plurality of slots of at least one adapting module is detachably installed with at least a terminator card for electrically connecting the plurality of slots installed with the terminator card to the ground layer of the electric board, as taught by McCall in order to provide impedance matching.

2.7. Claim 12 is rejected under 35U.S.C. 103(a) as being unpatentable over AAPA in view of Greefkes as applied to claims 2, 3, 10, 11 and 13-15 above, and further in view of Otsuka and in view of McCall.

Regarding to claim 12: AAPA as modified by the teaching of Greefkes teaches the structure having all of the claimed features as discussed above with respect to claim 11, wherein each adapting module (shown in fig. 1, 2) comprises: a plurality of slots 14, 24, fig. 1, 2 for detachably accommodating a plurality of corresponding adapting devices [0007]; and a controller 18, 28 for controlling operations of the adapting modules [0009], the controller for switching the controller between a predetermined voltage mode and a ground voltage mode [0009]; the method further comprising: utilizing the controller 18, 28 of the adapting module that does not operate switch to the ground voltage mode [0009] so that the controller is electrically connected to the ground layer [0007] of the electric board 12, 22 (combination of fig. 1 and 2, [0006], [0008]),

except AAPA doesn't teach two things:

1) the controller comprises a MOS circuit for switching the controller between a predetermined voltage mode and a ground voltage mode; and

2) installing at least a terminator card into the plurality of slots of the adapting module that does not operate (so that the plurality of slots installed with the terminator card is electrically connected to the ground layer of the electric board – intended use).

Otsuka discloses in the "Background of the invention" section, at the time the invention was made, that it was well known the controller 3, fig. 1 comprises a MOS

circuit for switching the controller between a predetermined voltage mode and a ground voltage mode (col. 1:1028).

Therefore it would have been obvious to one of ordinary skill in the art, at the time the invention was made for AAPA to include in his invention the controller comprises a MOS circuit for switching the controller between a predetermined voltage mode and a ground voltage mode, as taught by Otsuka in order to prevent a crosstalk.

McCall teaches in fig. 14 and 27 at least one slot 118 (18) is detachably installed with at least a terminator card 360 [0105]. Limitations: so that the plurality of slots installed with the terminator card is electrically connected to the ground layer of the electric board – are intended use. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 312 F.2d 937, 939, 136 USPQ 458, 459 (CCPA 1963). Since the claims do not express or imply a structural difference, they are not seen to be patentably distinct.

Therefore it would have been obvious to one of ordinary skill in the art, at the time the invention was made for AAPA to include in his invention installing at least a terminator card into the plurality of slots of the adapting module that does not operate so that the plurality of slots installed with the terminator card is electrically connected to the ground layer of the electric board, as taught by McCall in order to provide impedance matching.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yamaguchi – PG Pub. No. 2007/0018749;

Kwong et al. – US 7145083;

Barrass et al. – US 7106688.

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4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yuriy Semenenko whose telephone number is (571) 272-6106. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean A. Reichard can be reached on (571)- 272-2800 ext. 31. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Y. S./

Examiner, Art Unit 2841

/Dean A. Reichard/

Supervisory Patent Examiner, Art
Unit 2841